

CLAIMS

1. (Original) A loudspeaker, comprising:
 - a hollow frame provided with a first opening and a second opening facing the first opening;
 - a magnet provided inside the frame and having a first pole and a second pole facing the first opening and the second opening, respectively;
 - a plate made of a magnetic material, which is provided in contact with the first pole of the magnet;
 - a yoke made of a magnetic material, which is provided in contact with the second pole of the magnet, forms magnetic flux flow between the first pole and the second pole and has a groove portion on a surface facing the second opening;
 - a first voice coil having a first end located in a magnetic gap provided between the plate and the yoke,
 - a first diaphragm bonded to a second end of the first voice coil and bounded to the first opening of the frame at its outer periphery;
 - a second voice coil having a first end located in the groove portion; and
 - a second diaphragm bonded to a second end of the second voice coil and bonded to the second opening of the frame at its outer periphery.
2. (Original) The loudspeaker according to claim 1, wherein the yoke has a U-shaped cross section and has an outer wall portion supported by an inner wall of the frame, the magnet is provided inside the yoke, and the magnetic gap is provided between the outer wall portion of the yoke and the plate.
3. (Original) The loudspeaker according to claim 1, wherein the magnet and the plate are provided with a through hole in a center part thereof, the yoke has a center pole located in the through hole of the magnet and the plate, and the magnetic gap is provided between the center pole of the yoke and the plate.
4. (Original) The loudspeaker according to claim 1, wherein the groove portion has a width and a depth to allow a magnetic pathway of a magnetic circuit, which is formed of the magnet, the yoke and the magnetic gap and the plate, to be magnetically saturated at a location of the groove portion.

5. (Original) The loudspeaker according to claim 1, wherein the yoke has a standing wall provided at at least one side of the both sides of the groove.

6. (Original) The loudspeaker according to claim 1, wherein the frame and the yoke are integrated with each other.

7. (Currently Amended) A mobile telephone, comprising:

the loudspeaker described in claim 1, a loudspeaker including: a hollow frame provided with a first opening and a second opening facing the first opening, a magnet provided inside the frame and having a first pole and a second pole facing the first opening and the second opening, respectively, a plate made of a magnetic material, which is provided in contact with the first pole of the magnet, a yoke made of a magnetic material, which is provided in contact with the second pole of the magnet, forms magnetic flux flow between the first pole and the second pole and has a groove portion on a surface facing the second opening, a first voice coil having a first end located in a magnetic gap provided between the plate and the yoke, a first diaphragm bonded to a second end of the first voice coil and bounded to the first opening of the frame at its outer periphery, a second voice coil having a first end located in the groove portion, and a second diaphragm bonded to a second end of the second voice coil and bonded to the second opening of the frame at its outer periphery;

a transmitter-receiver for transmitting/receiving an originating signal, an incoming signal and a signal including sound data to/from an outside;

a control part releasing ringtone from [[a]] the first diaphragm of the loudspeaker based on the incoming signal received via the transmitter-receiver, and releasing ringtone from [[a]] the second diaphragm of the loudspeaker based on the signal including sound data received via the transmitter/receiver;

a microphone for inputting a sound signal transmitted to the control part; and

an input part for receiving input of information about originating and incoming, and transmitting the information to the control part.

8. (Canceled)

9. (Currently Amended) The method for manufacturing the a loudspeaker according to claim [[8]] 12, wherein ~~in the step A,~~ the groove portion is formed by forging ~~at a time when, before or after they yoke is formed.~~

10. (Currently Amended) The method for manufacturing the a loudspeaker according to claim [[8]], wherein ~~in the step A,~~ the groove portion is formed by casting when the yoke is formed.

11. (Currently Amended) The method for manufacturing the a loudspeaker according to claim [[8]] 12, further comprising ~~a step H)~~ of integrating the frame with the yoke by insert molding an outer wall of the yoke into the frame.

12. (New) A method for manufacturing a loudspeaker comprising:
disposing a magnet inside a hollow frame, the frame being provided with a first opening and a second opening facing the first opening, the magnet having a first pole and a second pole facing the first opening and the second opening, respectively;
bonding a yoke provided with a groove portion to the magnet on the second pole so that the groove portion faces the second opening;
bonding the magnet to a plate on the first pole, the plate being made of a magnetic material;
disposing a first end of a first voice coil in a magnetic gap provided between the plate and the yoke;
bonding a second end of the first voice coil to a first diaphragm;
disposing a first end of a second voice coil in the groove portion;
bonding a second end of the second voice coil to a second diaphragm;
bonding an outer periphery of the first diaphragm to the frame at the first opening;
and
bonding an outer periphery of the second diaphragm to the frame at the second opening.

wherein in the step A, the groove portion is formed by forging at a time when, before or after the yoke is formed.